SIDE-POWER
Thruster Systems

PJC211/212/221/222
S-link Control Panel

Keep this manual onboard !

EN **Installation and user's manual**
v 2.0.3

S-link™

SLEIPNER MOTOR AS
P.O. Box 519
N-1612 Fredrikstad
Norway
Tel: +47 69 30 00 60
Fax: +47 69 30 00 70

www.side-power.com
sidepower@sleipner.no

CE

Made in Norway

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DO NOT connect any other control equipment to the S-link controlled products except Side-Power original S-link products or via a Side-Power supplied interface product made for interfacing with other controls. Any attempt to directly control or at all connect into the S-link control system without the designated and approved interface, will render all warranties and responsibilities for the complete line of Side-Power products connected void and null. If you are interfacing by agreement with Sleipner and through a designated and approved interface, you are still required to also install an original Sidepower control panel to enable efficient troubleshooting if necessary

DECLARATION OF CONFORMITY

CE

We, Sleipner Motor AS
P.O. Box 519
N-1612 Fredrikstad, Norway

declare that this product with accompanying standard remote control systems complies with the essential health and safety requirements according to the Directive 89/336/EEC of 23 May 1989 amended by 92/31/EEC and 93/68/EEC.

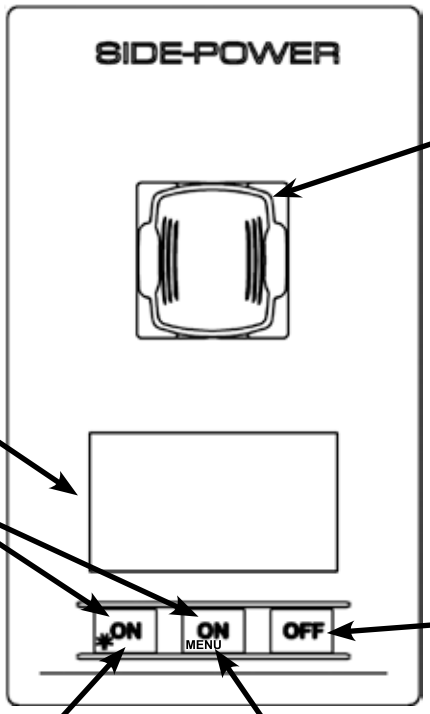
PJC-211/212/221/222

Control panel with S-link™ CAN-bus connection

Product features

- For proportional thruster control with DC, AC and Hydraulic Thrusters (Hydraulic thrusters PJC-221/222 only).
- Finger tip control speed control with purpose designed joysticks
- Hold - function for easy docking, runs thrusters at selected power (Dual joysticks PJC-212/222 only)
- Back-lit LCD display with instant feedback
  - System status / alarms
  - Amount of thrust & direction of thrust
- Interactive multi-language menus
- CAN-Bus communication with thrusters and accessories
- Plug & play cables with compact connectors
- Diagnostics and system setup via panel
- Built-in audible alarm "buzzer"
- Connector for external "buzzer"/loud audible alarms
- Supports Side-Power retractable thrusters with or without Speed Control

Panel Layout, PJC-211



Speed control joystick for thruster

Information display, see following pages for details.

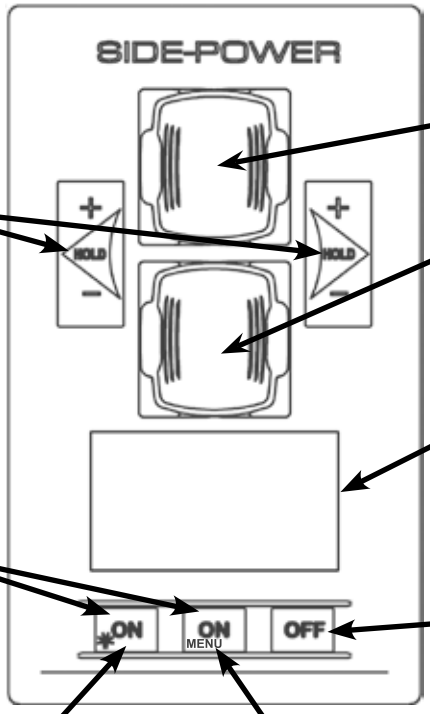
Press both "ON" buttons simultaneously to activate control panel.

Press to de-activate control panel or cancel or go back in menu system or mute internal alarm buzzer

Press to change between day and night light

Press and hold for 3 seconds to access menu system and choose items in menus

Panel Layout, PJC-212



Holding function for auto-running of bow and stern thrusters together in the direction of the arrows at selected power

Press "+" for more and "-" for less power (6 steps).

If any control unit are running the thruster in opposite direction to the hold function, the hold function will be deactivated.

Speed control joystick for bow thruster

Speed control joystick for stern thruster

Information display, see following pages for details.

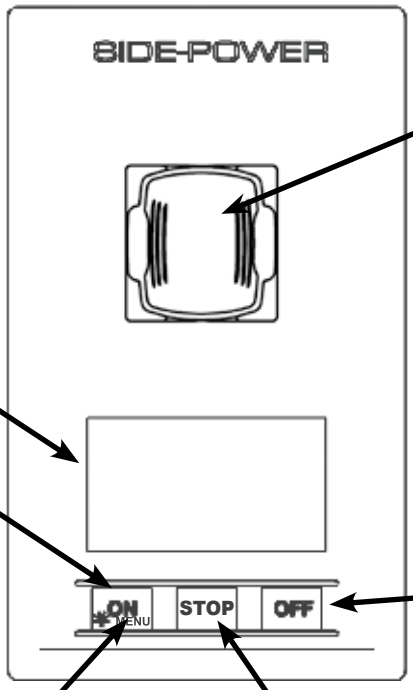
Press both "ON" buttons simultaneously to activate control panel.

Press to de-activate control panel or cancel or go back in menu system or mute internal alarm buzzer

Press to change between day and night light

Press and hold for 3 seconds to access menu system and choose items in menus

Panel Layout, PJC-221



Speed control joystick for thruster

Information display, see following pages for details.

Press and hold "ON" button for 1 second to activate control panel.

Press to de-activate control panel or cancel or go back in menu system.

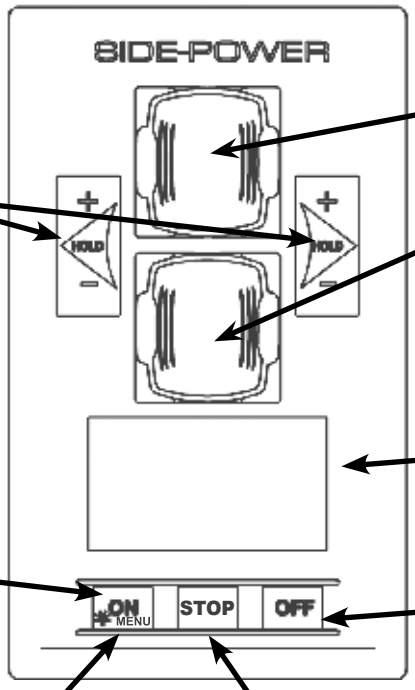
Mute buzzer alarm

Press to change between day and night light.

Press and hold for 3 seconds to enter menu system

Emergency stop button

Panel Layout, PJC-222



Holding function for auto-running of bow and stern thrusters together in the direction of the arrows at selected power

Press "+" for more and "-" for less power (6 steps).

If any control unit are running the thruster in opposite direction to the hold function, the hold function will be deactivated.

Speed control joystick for bow thruster

Speed control joystick for stern thruster

Information display, see following pages for details.

Press and hold "ON" button for 3 seconds to activate control panel.

Press to de-activate control panel or cancel or go back in menu system

Press to change between day and night light.
Press and hold for 3 seconds to enter menu system

Emergency stop button

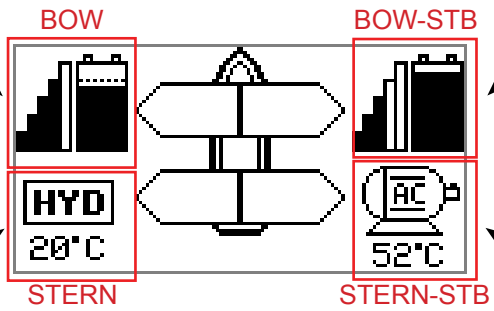
DISPLAY IN NORMAL USE:

Status indicators for bow thruster. (Port bow thruster in a dual bow thruster setup)

Runtime indicator will be shown here in a single DC electric bow thruster setup

Status indicators for stern thruster. (Port bow thruster in a dual stern thruster setup)

Runtime indicator will be shown here in a single DC electric stern thruster setup



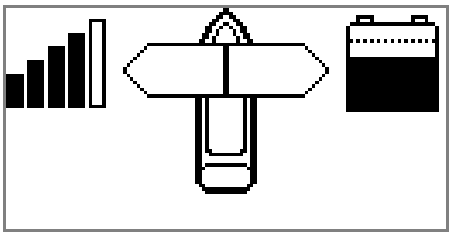
Status indicators for starboard bow thruster. Only shown in a dual bow thruster setup.

Battery indicator will be shown here in a single DC electric bow thruster setup

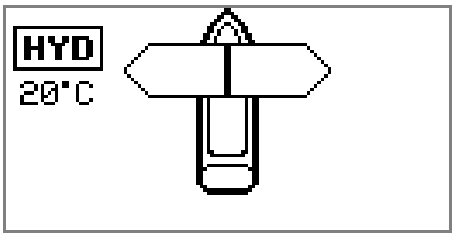
Status indicators for starboard stern thruster. Only shown in a dual stern thruster setup.

Battery indicator will be shown here in a single DC electric stern thruster setup.

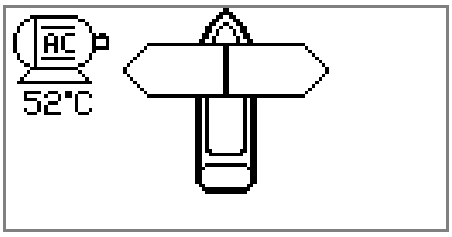
Examples of display for different panel applications:



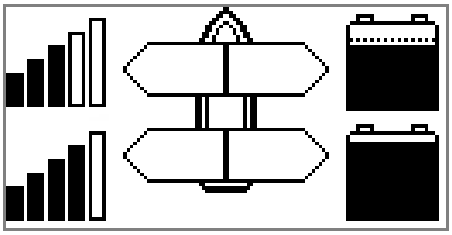
PJC211/221:
DC Electric Bow thruster



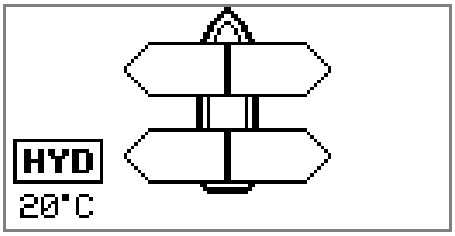
PJC221:
Hydraulic Bow thruster



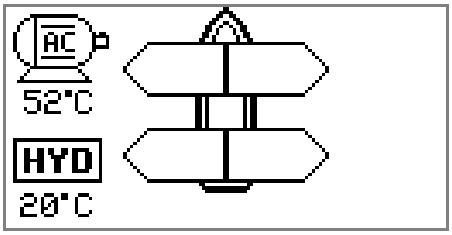
PJC221:
AC Electric Bow thruster



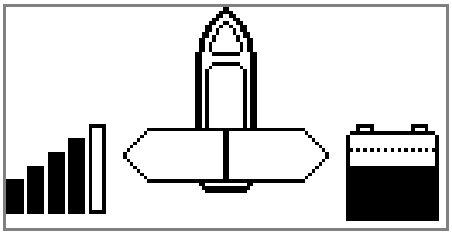
PJC212/222:
DC Electric Bow thruster
DC Electric Stern Thruster



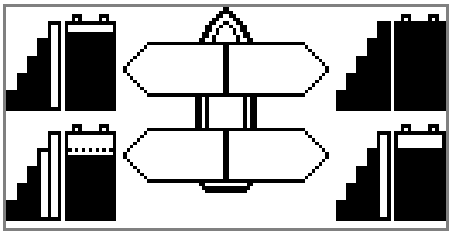
PJC222:
Hydraulic Bow thruster
Hydraulic Stern Thruster



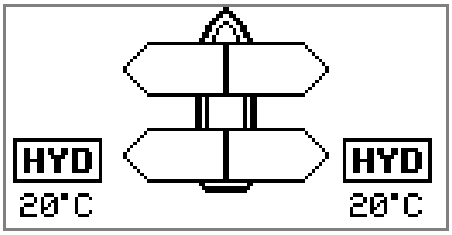
PJC222:
AC Electric Bow thruster
Hydraulic Stern Thruster



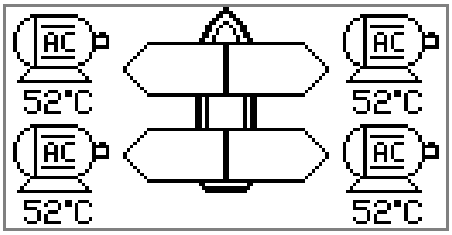
PJC211/221:
DC Electric Stern thruster



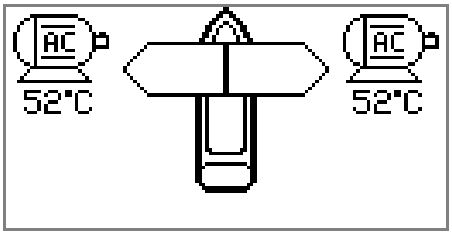
PJC212/222:
Dual DC Electric Bow thrusters
Dual DC Electric Stern thrusters



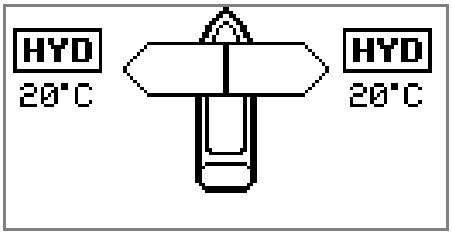
PJC222:
Dual Hydraulic Bow thrusters
Dual Hydraulic Stern thrusters



PJC222:
Dual AC Electric Bow thrusters
Dual AC Electric Bow thrusters

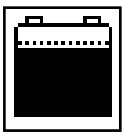


PJC221:
Dual AC Electric Bow thrusters

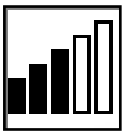


PJC221:
Dual Hydraulic bow thrusters

INDICATORS FOR DC Thrusters:

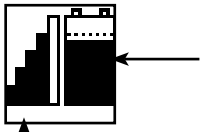


Battery indicator.
From 8.5V to 12V for 12V thrusters,
15V to 24V for 24V thrusters



Motor temperature indicator.
From 70°C to 130°C

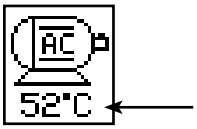
Symbol shown when a DC Thruster is used in a dual bow or dual stern setup:



Battery indicator.
From 8.5V to 12V for 12V thrusters,
15V to 24V for 24V thrusters

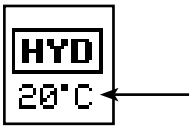
Motor temperature indicator.
From 70°C to 130°C

INDICATORS FOR AC Thrusters:



Motor temperature indicator.

INDICATORS FOR Hydraulic Thrusters:



Hydraulic oil temperature indicator.

INDICATORS FOR Retractable Thrusters:

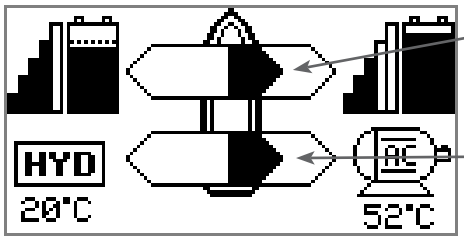
Symbol shown when the thruster deploys

Symbol shown when the thruster retracts

Symbol shown when the thruster is in position OUT

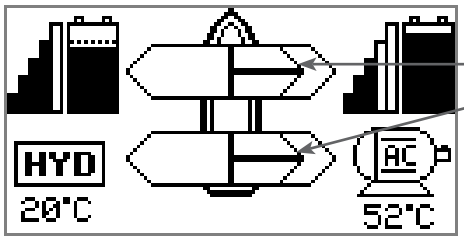
When the thruster is deployed and no input is given via the joysticks/buttons over a 10 second period, the panel will give a audible signal every 10th second to tell that the truster is still deployed.

INDICATORS showing thrust direction and amount:



Thrust power and direction, Bow thruster(s)
Input from bow joystick on this panel.
The thrust indicator will be shown in this position on a single joystick panel if the thruster is defined as a bow thruster

Thrust power and direction, Stern thruster(s)
Input from stern joystick on this panel
The thrust indicator will be shown in this position on a single joystick panel if the thruster is defined as a stern thruster.



Indicating amount of thrust set by other control units in the system, i.e additonal PJC panels, 8700 Retract panel, input via 8730 S-link external switch interface, S-link remote control etc.

If two or more units is set to run the thruster in opposite direction, this information will not be shown.

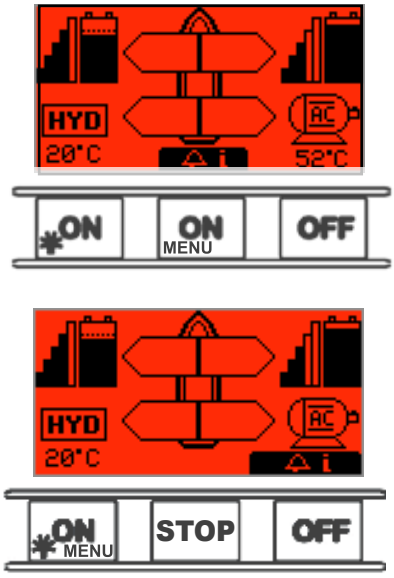
FIRST TIME SETUP

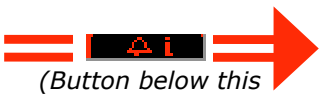
After installation of a S-link thrusters system, a **System Setup** procedure to setup control panels, thrusters and additional equipment must be completed (ref. procedure on page 10) before the system can be used.

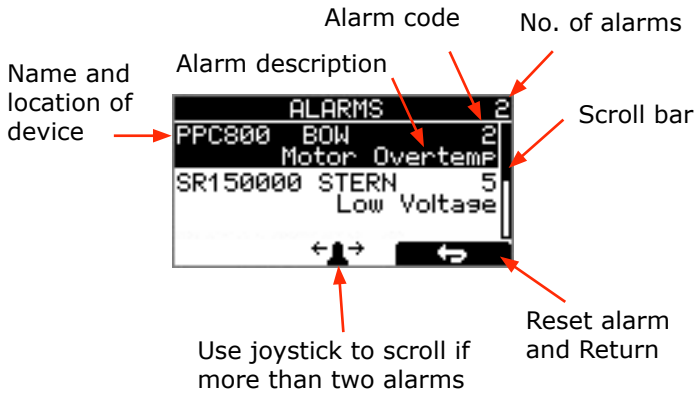
DISPLAY WHEN ALARMS:

When there is a problem or a fault, the panel will show this alarm situation by changing LCD display backlight to red color.

The panel will also change to show "Alarm Info" on the bottom of the screen, indicating that by pressing the corresponding button below, you will get information about what the problem is (examples below).







Refer to Alarm code overview/table on pages 18-19 for full description on the different alarm codes.

Non auto reset alarms

Some alarms is not auto reset, and needs an confirmation from user to be reset.
This alarms need reset: Motor Overcurrent 1, Controller Overtemp 2, Low Voltage 5, IPC Error 7, Critical Error 8, Low Motor Current 9, Motor Contactor 10, System Error 11, No Communication 12, Motor Temp Sensor 13, Supply Voltage Fault 14, Fuse Blown 15, Motion OUT Fault 17, Motion IN Fault 18, Actuator Fault 19, Pos.Sensor Fault 20, Low Oil Level 23, AC Motor Sensor Fault 29, VFD Fault 34, Warning Low Voltage 35.

When using the "HOLD" function,

the internal and external (if fitted) buzzer will give the following warning signals:

Voltage below 9.3V/17.5V (12V/24V system) or temperature above 85°C (80°C for PPC800 FW V1.013 or older/ SR150000 FW V1.006 or older): Single short beep every 2.4 seconds

Voltage below 8.9V/16.3V (12V/24V system) or temperature above 100°C (90°C for PPC800 FW V1.013 or older/ SR150000 FW V1.006 or older): Two short beeps every 2.4 seconds

Voltage below 8.5V/15V (12V/24V system) or temperature above 115°C (100°C for PPC800 FW V1.013 or older/ SR150000 FW V1.006 or older): Red backlight in display and continous short beeps.

If one or more of the thrusters enters an alarm state - Voltage below 8 Volts (both 12 and 24 Volt systems) or temperature above 130°C (110°C for PPC800 FW V1.013 or older/ SR150000 FW V1.006 or older): Continuous beeps, and the "HOLD" function will be cancelled and both thrusters will stop. Temperature must drop below 115°C (100°C for PPC800 FW V1.013 or older) before the thruster can be operated again.

ALARMS (AC & HYDRAULIC THRUSTERS):

When there is a problem or a fault, the panel will show this alarm situation by the LCD display in red color.
All alarms will show in display when panel is turned OFF. This requires the S-link and other system devices has power. Critical alarms are also trigging internal and external buzzer (a long beep every 2 seconds). The buzzer can be silenced by pushing the button below , this will also silence all other panels in the system

Critical alarms: LOW OIL LEVEL, HIGH OIL TEMPERATURE, EMERGENCY STOP, HIGH SPEED STABILIZER NOT ACTIVE and HYDRAULIC AC MOTOR POWER PACK OVERTEMP, AC THRUSTER OVERTEMP, AC THRUSTER FAIL, STABILIZER FAULT

For safety!
When oil pressure goes below 10bar, the HOLD function are deactivated.

SPECIFIC ALARMS

STOP BUTTON
Pressing the STOP button on a hydraulic panel will operate the dump valve and the thruster will stop. NB: FOR EMERGENCY USE ONLY

Panel will not run thrusters.
Pressing button below will mute buzzer alarm at all panels and show the alarm info screen.

WARNING! HIGH SPEED. STABILIZER NOT ACTIVE!
(Only for yachts equipped with a Side-Power Stabilizer system)
Warning will show when yacht is driven at high speed with stabilizer system inactive. Please refer to the ***Stabilizer ECU manual*** for speed settings.

Pressing button below will mute buzzer alarm at all panels and show the alarm info screen.

ALARM SHOWN ON INACTIVE PANELS!
This screen will be shown on inactive panels if any of the following critical alarms occur:
LOW OIL LEVEL, HIGH OIL TEMPERATURE, HYDRAULIC AC MOTOR POWER PACK OVERTEMP, AC THRUSTER OVERTEMP, AC THRUSTER FAIL

Pressing button below will mute buzzer alarm at all panels and show the alarm info screen.

SETUP PROCEDURE

The setup procedure requires knowledge of the serial numer and location of all the S-link devices.

Write this down in the form on the last page to have the information at hand when doing a manual setup.

At the first startup of a new system, one of the two screens below will be shown:

SETUP DO NOT MATCH SYSTEM. ✓FOR AUTO SETUP
New devices found. Not in conflict with other devices.
Press button below the ✓ -symbol to auto setup.

Thrusters can not be operated to auto setup is completed.

RUN SETUP! DEVICES IN CONFLICT!
Detectet devices in conflict. Two or more thrusters defined as same instance (bow/stern/bow STB/Stern STB). Run Setup procedure to correct.

Thrusters can not be operated until seup is completed.

Press and hold the button marked “MENU” for 3 seconds to enter the menu system. Use the (stern) joystick to select “SETUP”, Press button below the ✓-symbol to enter the”SETUP”-menu.

Use the (stern) joystick to select “SYSTEM DEVICES”,
Press button below the ✓-symbol to enter the”SYSTEM DEVICES”-menu.

Use the (stern) joystick to set the pin code one number at the time,
press button below the ✓-symbol to jump to next number and confirm.
The pin code is “9 9 9 9”.

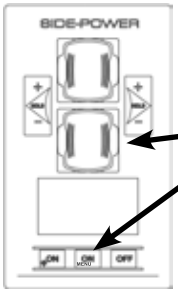
NOTE: Re-entering the SYSTEM DEVICES menu within 15 minutes does not require entering PIN code

The devices found in the system is now displayed with their instance and serial number.

Go through all devices and make sure that they are set to the correct instance and function (refer to detailed instructions in the SETUP section of “Menu System”-chapter).

Press button below the ⇆-symbol to save setting and return to “Setup”-Menu.

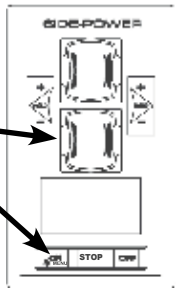
MENU SYSTEM:



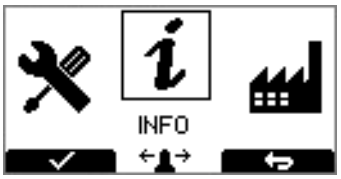
Access menu system by press and hold Menu button for 3 seconds

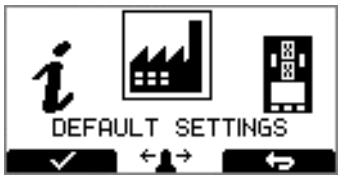
Move around in menus by using joysticks

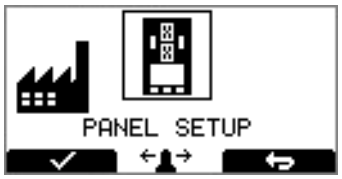
Follow instructions on the screen and press the buttons below the symbols indicated on LCD screen



MAIN MENU ITEMS:
Move between main menu items with the (stern) joystick.







BUTTON SYMBOLS
On the bottom line of the display, a symbol will be shown over the buttons below.
These symbols will show what function each corresponding button have in the selected menu entry.

: ***Return*** to previous menu.
: ***Select*** highlighted menu text / ***Save*** edited parameter.
: ***Edit*** highlighted parameter.
: ***Cancel*** editing without saving.

: This symbol indicates that the (stern) joystick is used to move between menu items /parameters.

LANGUAGE

LANGUAGE

Choose language by moving joystick:
English, Norwegian, German, French, Spanish and Italian.
Press the button below ✓ to set the language to the highlighted menu entry. A star (*) on each side indicated the laguage set.

STABILIZER
(Default in systems with stabilizers)

STABILIZER

(Shown only for yachts equipped with a Side-Power Stabilizer system)

Press the button below ...✎ to edit the selected parameter.
ON/OFF will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device.

STABILIZER:
Values: ON/OFF

Switches the stabilizer ON or OFF.

AnySpeed:
Values: ON/OFF

Switches the zero speed/at anchor stabilization ON or OFF.

SETUP

(Default in systems without stabilizers)

SETUP

Move between menu items with the (stern) joystick.
Press the button below ✓ to select the highlighted menu entry.
Press the button below ↩ to return to the previous menu.

Setting done under SETUP will be sent to all other panels in the system.

SYSTEM DEVICES
View all devices (except PDC100[1]) connected to S-Link and manually change setup values.

[1] PDC100 must be setup by authorized personnel.

A PIN code is required to enter the SYSTEM DEVICES menu.
Use the (stern) joystick to set the pin code one number at the time, press button below the ✓-symbol to jump to next number and confirm. The pin code is "9 9 9 9".

The number of devices found is shown in the upper right corner of the display.

Use (stern) joystick to move between the installed devices.

The list of devices found can fill more than one screeen. A scroll bar indicates the position of the selected item.

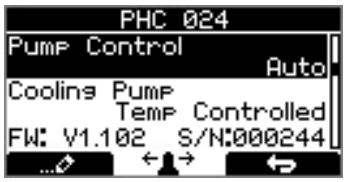
NOTE: Re-entering the SYSTEM DEVICES menu within 15 minutes does not require entering PIN code

PHC 024 (Controller for hydraulic thrusters)
Most functions requires PHC 024 with firmware V.1.101 or newer!
Move between PHC-024 parameters with the (stern) joystick.
Press the button below ↩ to return to the previous menu.
Press the button below ✎ to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below ✗ to cancel editing without saving.

Bow/Stern Direction:
Values: Normal (default)/Inverted

Switches between Normal and Inverted running direction for the thruster

Pump Control (PTO Mounted Pump)
Values: Auto(default)/Always ON



When «Pump Control» is set to «Auto», the system will automatically control load sharing between two PTO pumps by deactivating the second PTO pump when not needed (two PTO pumps/control valves required) to reduce heat generation in the system and save fuel/energy.

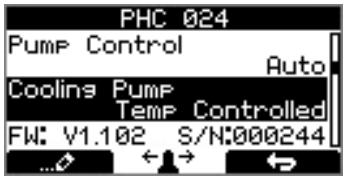
When any thruster is running, both PTO pumps will be active to ensure good performance. When a SPS stabilizer system is active, one PTO pump will be deactivated to save power. If stabilizers are active and the system pressure drop below 80bar, the system will activate the second PTO pump for 15 minutes to increase the flow capacity and maintain required pressure. After 15 minutes the second pump will be deactivated unless the pressure is still below 80 bar.

NB: "Pump Control: Auto" must only be used on PHC 024 with firmware V.1.008 or newer!

SETUP cont.

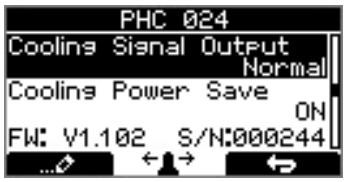
Cooling Pump
Values: Always Running/Temp Controlled(default)

When the option "Temp Controlled" is selected, the cooling pump will start when oil temperature exceeds 50°C and stop when the oil temperature goes below 40°C.
On systems with two oil tanks, this setting will apply to both tanks.



Cooling Signal Output
Values: Normal (default)/Inverted

Set to Normal when using a hydraulic cooling pump.
Should be set to Inverted when using an electrical cooling pump with a 10 2380A-12/24V relay box

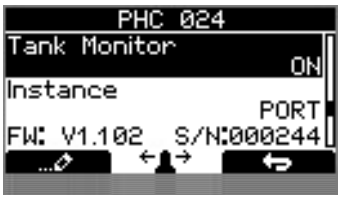


Cooling Power Save
Values: ON (default)/OFF

ON sets the Cooling Pump into power save mode,which means the Cooling Pump output is dropping to 0 volt when the oil pressure is below 10 bar for more than 10 seconds (Cooling Pump are turned OFF).

Tank Monitor
Values: ON (default)/OFF

ON is when you have a tank monitor, oil level and Oil temp sensor.
OFF is when you do not have a tank monitor and the display will show 0°C and no alarm for high temperature or low level will not be transmitted on the S-link.



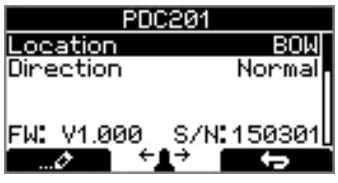
Instance
Values: --(default)/PORT/STARBOARD

Setting the PHC024 tank controller instance. For a mono hull boat the instance should be "--". If you have an catamaran with two PHC024 controllers then the one in the port hull should be set as "PORT" and the one in the starboard hull as "STARBOARD". This way the two controllers are shown in the panel display as two different oil tanks to monitor.

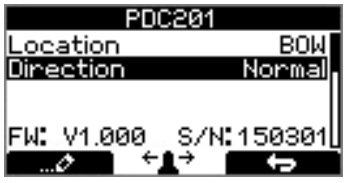
Instance

PDC 201 (SAC Controller)
Press the button below ⮌ to return to the previous menu.
Press the button below …🖉 to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below ✗ to cancel editing without saving.

Location
Values: BOW/STERN/BOW-STB/STERN-STB
Set the location for selected device. Use BOW or STERN in a conventional thruster system. In a system with two bow or stern thrusters (i.e a catamaran), use BOW or STERN for port thruster, BOW-STB or STERN-STB for starboard thruster



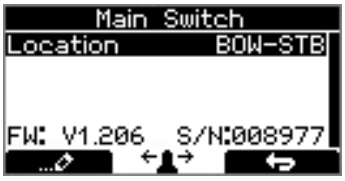
Direction
Values: Normal (default)/Inverted
Switches between Normal and Inverted running direction for the thruster



SETUP cont.

Main Switch
Press the button below ⮌ to return to the previous menu.
Press the button below …🖉 to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below X to cancel editing without saving.

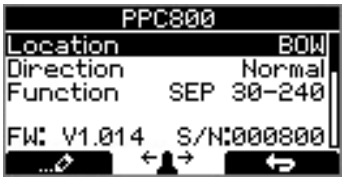
Location
Values: BOW/STERN/BOW-STB/STERN-STB



Set the location for selected device. Use BOW or STERN in a conventional thruster system. In a system with two bow or stern thrusters (i.e a catamaran), use BOW or STERN for port thruster, BOW-STB or STERN-STB for starboard thruster

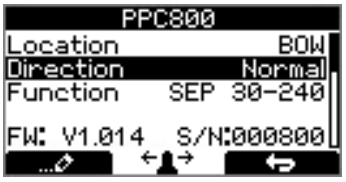
PPC800 (DC Speed Control)
SR150000 (Control unit for SRV80/SRV100/SRV130/SRV170/SRV210/SRH)
SR61242 (Control unit for SR80/SR100)
Move between parameters with the (stern) joystick.
Press the button below ⮌ to return to the previous menu.
Press the button below …🖉 to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below X to cancel editing without saving.

Location
Values: BOW/STERN/BOW-STB/STERN-STB



Set the location for selected device. Use BOW or STERN in a conventional thruster system. In a system with two bow or stern thrusters (i.e a catamaran), use BOW or STERN for port thruster, BOW-STB or STERN-STB for starboard thruster

Direction
Values: Normal (default)/Inverted



Switches between Normal and Inverted running direction for the thruster

Function
Values: SR(V/L) ON/OFF, SRP 80/100, SRVP 130-210, SEP 30-240, SRVP 80/100, SRH, SRHP

Setup the control unit behaviour

SR(V) ON/OFF: Retract thruster without speed controller (PPC800/PHC-024), SR61242 or SR150000.

SEP 30-240: Tunnel speed thruster, PPC800 without retract.

SRP: Retract SR61242 with PPC800, both devices needs to be set to SRP 80/100.

SRVP/SRLP: Retract SR150000 with PPC800, both devices needs to be set to SRVP/SRLP.

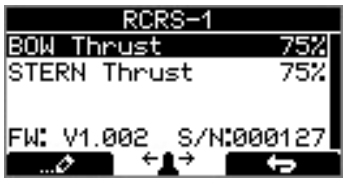
SRHP: Proportional Hydraulic retract. This needs the PHC024 controller.

	PPC800	SR150000	SR61242	PHC 024
SR(V/L) ON/OFF		x	x	
SRP	x		x	
SRVP/SRLP	x	x		
SEP 30-240	x			
SRHP		x		x

RCRS-1 (S-Link Radio Remote Receiver)
Move between parameters with the (stern) joystick.
Press the button below ⮌ to return to the previous menu.
Press the button below …✎ to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below ✗ to cancel editing without saving.

BOW/STERN Thrust
Values: 0-100% (Default 75%)

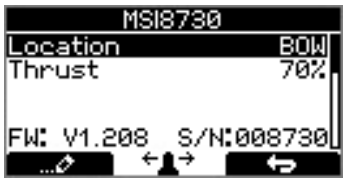
Set the amount of thrust given by the remote control.
In a bow/stern configuration, try to balance the thrust so that the boat moves straight sideways when both thrusters are operated simultanously with input from the remote only.



MSI8730 (S-Link Interface)
Move between parameters with the (stern) joystick.
Press the button below ⮌ to return to the previous menu.
Press the button below …✎ to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save edited parameter to device
Press the button below ✗ to cancel editing without saving.

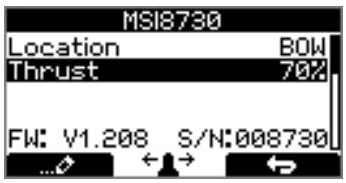
Location
Values: BOW/STERN/BOW-STB/STERN-STB

Set the location for selected device. Use BOW or STERN in a conventional thruster system. In a system with two bow or stern thrusters (i.e a catamaran), use BOW or STERN for port thruster, BOW-STB or STERN-STB for starboard thruster



Thrust
Values: 0-100% (Default 75%)

Set the amount of thrust given by the remote control.
In a bow/stern configuration, try to balance the thrust so that the boat moves straight sideways when both thrusters are operated simultanously with input from the remote only.

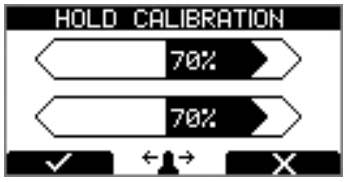


HOLD CALIBRATION
Calibrates the HOLD-function to get balanced thrust from the bow and stern thruster.

To start calibration, press the "+"-Hold button in the desired direction. For a first time calibration, the thrusters will start at 70%.
A system previously calibrated will start with the last amount of thrust set.

One step on the Hold-button represents 1/6 if the calibrated value.

Adjust power with the joystick.
Press the button below ✓ to save the calibration values.
Press the button below ✗ to cancel calibration without saving.



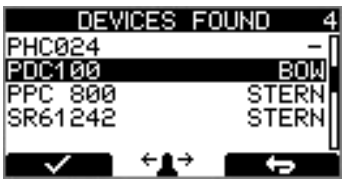
INFO

INFO

Move between menu items with the (stern) joystick.
Press the button below ✓ to select the highlighted menu entry.
Press the button below ↩ to return to the previous menu.

THRUSTER INFO

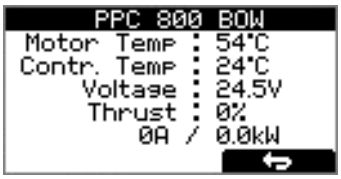
Display info about the thusters in the system
The number of thrusters/controllers found is shown in the upper right corner of the display.



Use (stern) joystick to move between the installed devices.
Press the button below ✓ to select the highlighted menu entry.
Press the button below ↩ to return to the previous menu.

The list of devices found can fill more than one screeen. A scroll bar indicates the position of the selected item.
The joystick(s) operates the thrusters as normal while info is displayed, this will be useful for troubleshooting, service and general system diagnostics.

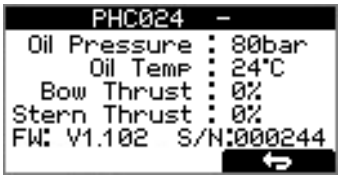
PPC800 (DC Speed Control)
SR150000 (Control unit for SRV80/SRV100/SRV130/SRV170/SRV210/SRH)
SR61242 (Control unit for SR80/SR100)



Motor Temp:	Temperature measured at the electric motor brushes (Not implemented in SR61242)
Contr. Temp:	Temperature measured inside the controller (Not implemented in SR61242)
Voltage:	Motor Voltage measured at the controller
Thrust:	Thrust level from joystick/hold buttons
A/kW:	Motor Current and Effect reading measured at the controller (PPC800 only)

Press the button below ↩ to return to the previous menu.

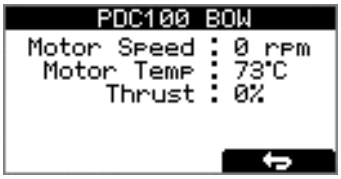
PHC024 (Controller for hydraulic thrusters)



Oil Pressure:	Oil pressure measured at system oil tank
Oil Temp:	Temperature measured inside the oil tank
Bow Thrust:	Thrust level from joystick/hold buttons
Stern Thrust:	Thrust level from joystick/hold buttons
FW:	Version number, Firmware
S/N:	Serial number of the PHC 024

Press the button below ↩ to return to the previous menu.

PDC100 (Controller for AC electric thrusters)



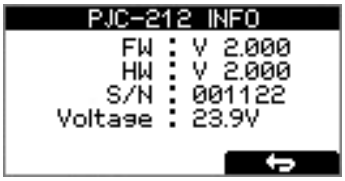
Motor Speed:	RPM on motor output shaft
Motor Temp:	Temperature measured in motor
Thrust:	Thrust level from joystick/hold buttons

Press the button below ↩ to return to the previous menu.

Panel INFO

Display info about the control panel

FW: Version number, Firmware
HW: Version number, Hardware
S/N: Serial number of the control panel
Voltage: S-link system voltage measured at the panel



Press the button below ↩ to return to the previous menu.

DEFAULT

DEFAULT SETTINGS

Reset all settings to factory default - follow instructions on screen

Press the button below ✓ to confirm reset

The following parameters/values will be set to the factory settings:

Language = English
Backlight Level = 5
Backlight Night Color = Green
Backlight Nightlevel =1
Timer Auto-Off = 05 min
Hold Calibration =70% Bow and Stern

All system devices will be erased from memory.
(Setup procedure must be followed to reconfigure the system)

PANEL

PANEL SETUP

Move between parameters with the (stern) joystick.
Press the button below ↩ to return to the previous menu.
Press the button below …✎ to edit the selected parameter.
Parameter value will start to blink, use joystick to alter value.
Press the button below ✓ to save the edited parameter.
Press the button below X to cancel editing without saving.

BACKLIGHT LEVEL
Values: 1-5

Set level of panel backlight in daylight mode.
1 is lowest intensity, 5 is the highest.

BACKLIGHT NIGHT COLOR
Values: GREEN, BLUE, RED, WHITE

Select color of backlight in nightlight mode

BACKLIGHT NIGHT LEVEL
Values: 1-3

Set level of panel backlight in daylight mode,
1 is lowest intensity, 3 is the highest.

TIMER AUTO-OFF
Values: OFF, 01-60 min

Set the time from last use to auto panel shutdown.
Set from 1-60 minutes in 5 minute steps (1 minute steps
from 1 to 5 minutes) or OFF (panel will not turn off automatically)

UNIT TEMPERATURE
Values: CELSIUS (Default), FAHRENHEIT
Set the panel temperature displaying unit

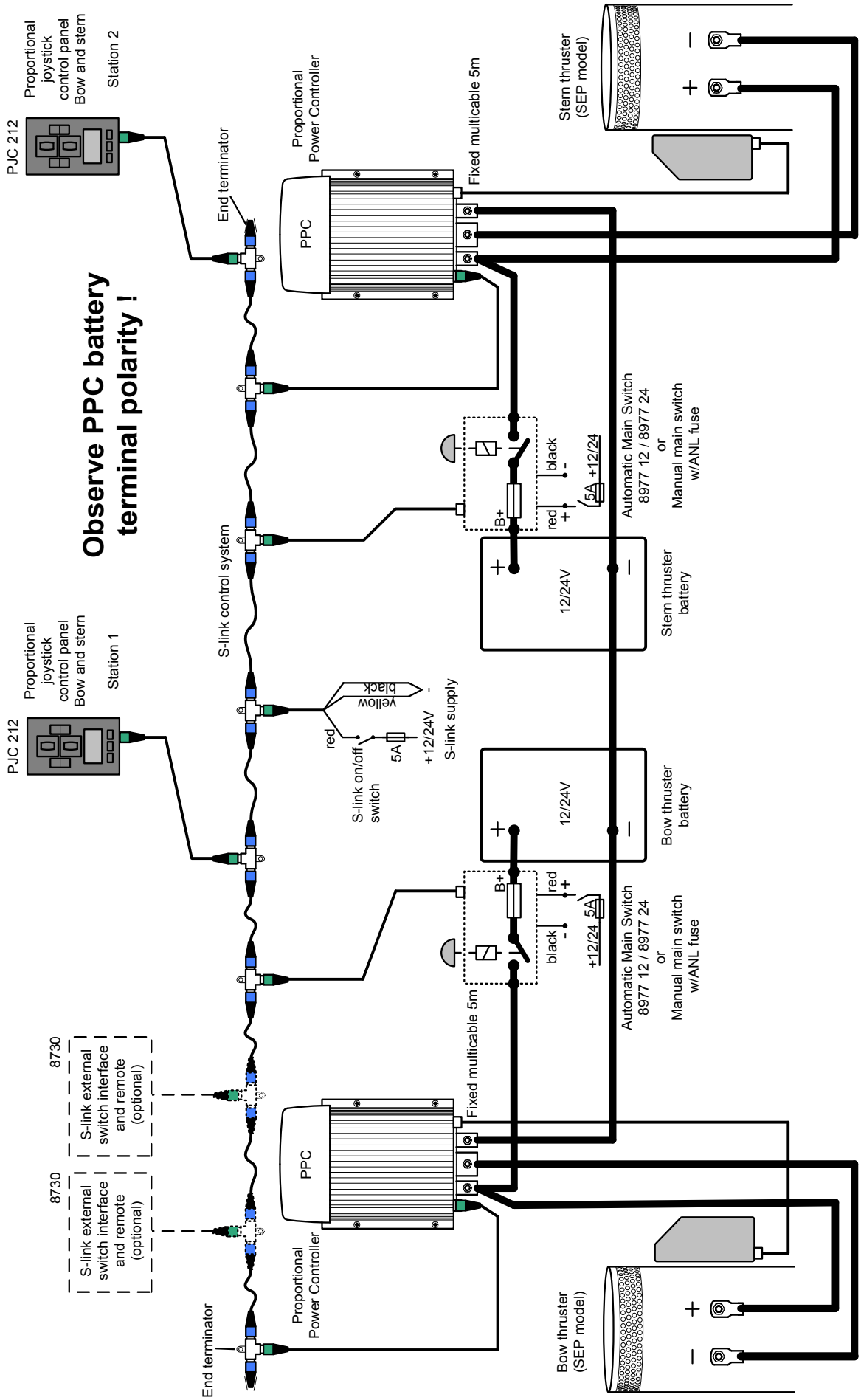
WHEN RETRACT IS OUT
Values: NO WARNING (Default), WARNING EVERY 10sec

Select 'WARNING EVERY 10sec' for external buzzer or lamp warning every 10 secondswhen retract is out. This will activate the internal relay for 0.2 seconds every 10 seconds while the retract is out. See page 22 for buzzer connections.

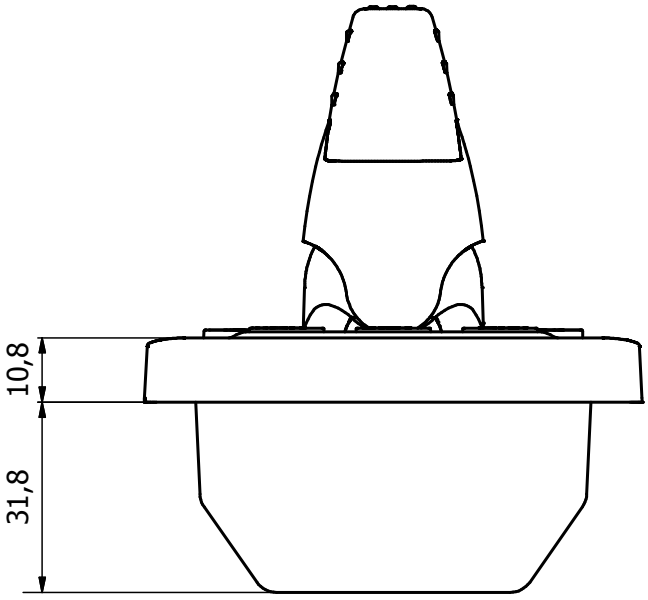
Errors shown in display	Err. No.	Auto Reset	PPC 800	AMS 8977	SR80/100	SRV130-210 SRV80/100 SRH	PHC 024	SAC	Stabilizer ECU	Description	Action
Motor Overcurrent	1		X							Motorcurrent over 1400A	Thruster must be serviced by authorized personel, reset or PPC800 power OFF/ON
Motor Overtemp	2	Yes	X			X				Motortemp have been over 130°C (110°C for PPC800 FW V1.013 or older and SR150000 FW V1.006 or older.)	Motor cool down below 115°C (100°C for PPC800 FW V1.013 and older and SR150000 FW V1.006 and older)
Controller Overtemp	3		X							PPC800 temp have been over 80°C	PPC800 cool down below 45°C
Controller Overtemp	4					X				SR150000 temp have been over 80°C	SR150000 cool down below 45°C
Low Voltage	5		X		X	X				Low voltage on Motor	Recharge battery, reset or device power OFF/ON
Thermoswitch	6	Yes			X					Motortemp have been over 110°C	Motor cool down below 100°C
IPC Error	7		X		X	X				Motor relay fault	Turn off thruster battery main switch. Thruster must be serviced by authorized personel, power OFF resets alarm.
Critical Error	8		X							PPC800 output fail	PPC800 must be sendt for service
Low Motor Current	9		X							Thruster uses no power	Check thruster connections or motor dead!
Motor Contactor	10		X			X				No current on motor relay coil.	Check motor relay connections, short circuit or relay dead!
System Error	11		X	X	X	X				Fatal error	Device must be serviced by authorized personel
No Communication	12		X	X	X	X	X	X		No communication with device	Check S-Link or power connections
Motor Temp Sensor	13		X			X		X		Motor temperature sensor fail	Check for an open circiut on the temp sensor on the motor
Supply Voltage Fault	14			X						No power	Check power connections
Fuse Blown	15			X						Fuse blown	Replace fuse or check if main cable from battery and main cable to thruster has been switched
Manual Override	16	Yes		X						Main switch manually overridden	Pull main switch
Motion OUT Fault	17				X	X				Retract obstructed while deploying	Turn off all panels. Go for lower speed/deeper water and retry.
Motion IN Fault	18				X	X				Retract obstructed while retracting	Turn panel on and manually override main switch. Remove obstruction and try again.

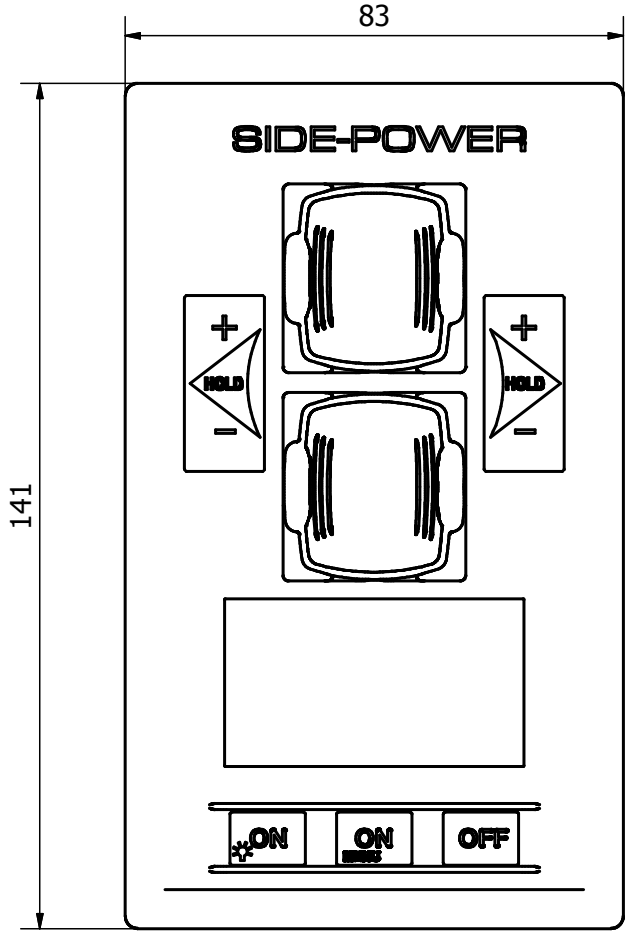
Errors shown in display	Err. No.	Auto Reset	PPC 800	AMS 8977	SR80/100	SRV130-210 SRV80/100 SRH	PHC 024	SAC	Stabilizer ECU	Description	Action
Actuator Fault	19				X	X				Actuator not getting any power	Check actuator connection or power to actuator. Reset alarm in alarm menu on PJC 2xx or recycle power
Pos.Sensor Fault	20					X				Retract position sensor fail	Check position sensor cables and for sensor damage.
In Service Mode	21	Yes				X				Retract controller in service mode	Check dipswitch setting on retract control box.
High Oil Temp	22	Yes					X			Hydraulic oil temperature is higher than 75°C	Stop running and wait for temperature to drop. Check if cooling pump is running.
Low Oil Level	23	Yes					X			Hydraulic oil lewel is to low	Fill more hydraulic oil to the hydraulic tank.
Warning Return Filter	24	Yes					X			Return filter element requiered replacing	
Warning Pressure Filter	25	Yes					X			Pressure filter element requiered replacing	
Warning High Speed	26	Yes							X	WARNING! High Speed. Stabilizer not active!	
Stabilizer Fault	27	Yes							X	Any Stabilizer alarm.	Se stabilizer panel for more info.
AC Motor Overtemp	28	Yes					X			Hydraulic AC motor power pack overtemp. Higher than 120°C	
AC Motor Sensor Fail	29						X			Hydraulic AC motor power pack temp sensor open curicuit	
Temperature Warning	30	Yes	X			X		X		High temperature warning. Se manual for more details.	
Motor Overtemp	31	Yes						X		High temperature Alarm. Se SAC manual for more details.	
VFD Warning	32	Yes						X		There is an warning from VFD. Check VFD for more details.	
VFD Not Ready	33	Yes						X		The VFD is not ready. Check VFD for more details.	
VFD Fault	34							X		VFD has an Alarm. Check VFD for more details.	
Warning Low Voltage	35		X			X		X		Low voltage Warning!	
Not Calibrated	36	Yes				X				Drive shaft not aligned	Calibrate drive shaft alignment, see retract manual
VFD Modbus Fault	37							X		PDC201 no Modbus communication	

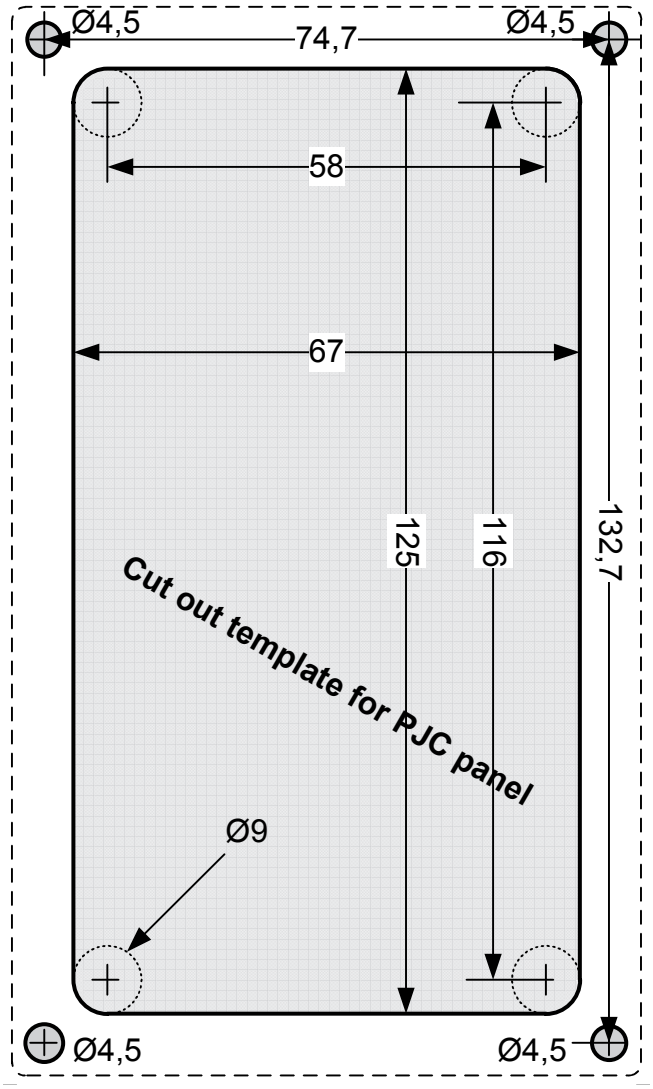
Sample S-link system



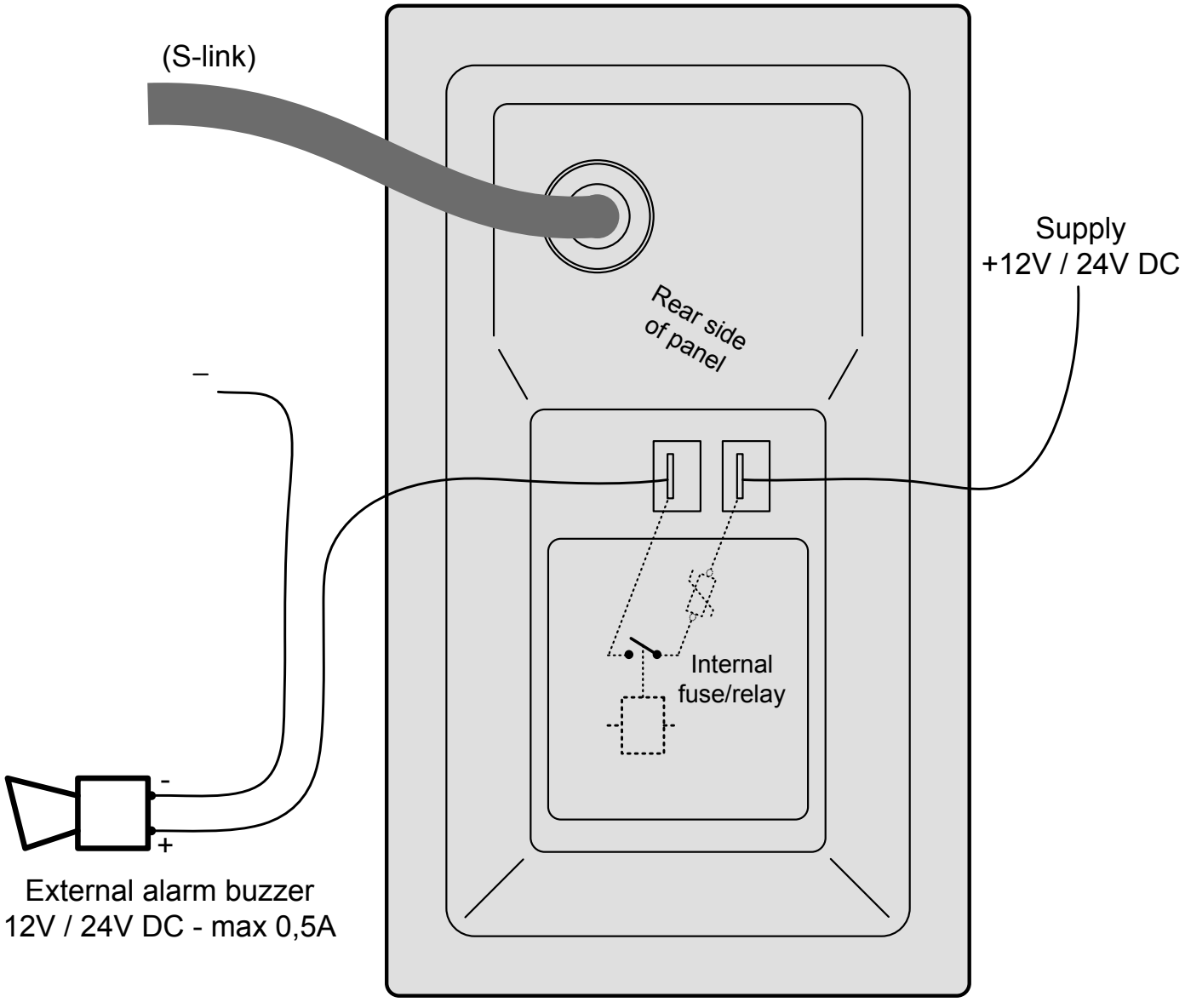
Measurements







Connections for optional external buzzer/audible alarm



Fill in the type, location and serial numbers of the S-link devices installed. Keeping this as a reference will make the setup procedure easier!

S-link device (ie Thruster, AMS, PPC800 etc)	Location (Bow, Bow-STB, Stern, Stern-STB)	Serial number

SIDE-POWER SERVICE CENTRES

Argentina
Trimer SA
Buenos Aires
Tel:+54 11 4580 0444
Fax:+54 11 4580 0440
www.trimer.com.ar
trimer@trimer.com.ar

Australia
AMI Sales
Freemantle, WA
Tel:+61 89 331 0000
Fax:+61 89 314 2929
ami@amisales.com.au

Austria
G. Ascherl GmbH
Hard, Bregenz
Tel:+43 5574 899000
Fax:+43 5574 89900-10
www.ascherl.at
office@ascherl.at

Benelux
ASA Boot Electro
Watergang
Tel:+31 20 436 9100
Fax:+31 20 436 9109
www.asabootelectro.nl
info@asabootelectro.nl

Brazil
Electra Service Ltda.
Guaruja
Tel:+55 13 3354 3599
Fax:+55 13 3354 3471
www.electraservice.com.br
albertoni@electraservice.com.br

Bulgaria
Yachting BG
Burgas
tel: +359 56 919090
fax: +359 56 919091
www.yachting.bg
info@yachting.bg

China/Hong Kong
Storm Force Marine Ltd.
Wanchai, Hong Kong
Tel:+852 2866 0114
Fax:+852 2866 9260
www.stormforcemarine.com
sales@stormforcemarine.com

Croatia
Yacht Supplier
Icici
Tel:+385 51 704 500
Fax:+385 51 704 600
acyachting@gmail.com

Cyprus
Ocean Marine Equipment Ltd
Limassol
Tel: +357 253 69731
Fax: +357 253 52976
oceanm@spidernet.com.cy

Denmark
Side-Power Europe
Tel: +45 53 58 93 63
www.side-power.com
carsten@side-power.com

Estonia/Latvia/Lithuania
Miltec Systems OÜ
Tallin
Tel: +372 5013997
Fax: +372 6442211
www.miltec.ee
tony@miltec.ee

Finland
Side-Power Europe
Vaasa
Tel: +358 6 317 10 41
Fax: +358 6 317 10 42
kalle@engbo.fi

France
Kent Marine Equipment
Nantes
Tel:+33 240 921 584
Fax:+33 240 921 316
www.kent-marine.com
contact@kent-marine.com

Germany
Side-Power Europe
Tel:+49 7159 4 59 0761
www.side-power.com
olaf@side-power.com

Greece
Amaltheia Marine
Athens
Tel:+30 210 2588 985
Fax:+30 210 2588 986
www.amaltheiamarine.com
amalmar@otenet.gr

Iceland
Maras EHF
Reykjavik
Tel:+354 555 6444
Fax:+354 565 7230
www.maras.is
gummi@maras.is

India
Indo Marine Engineering Co. Pvt. Ltd
Pune, Maharashtra
Tel:+91 20 2712 3003
Fax:+91 20 2712 2295
siddharth@indogroup-asia.com

Israel
Atlantis Marine Ltd.
Tel Aviv
Tel:+972 3 522 7978
Fax:+972 3 523 5150
www.atlantis-marine.com
atlantis@inter.net.il

Italy
Saim S.P.A.
Assago-Milan
Tel:+39 02 488 531
Fax:+39 02 488 254 5
www.saim-group.com

Japan
Turtle Marine Inc.
Nagasaki
Tel:+81 95 840 7977
Fax:+81 95 840 7978
www.turtle-marine.com
info@turtle-marine.com

Malta
S & D Yachts Ltd.
Cali
Tel:+356 21 339 908
Fax:+356 21 332 259
www.sdyachts.com
info@sdyachts.com

New Zealand
Advance Trident Ltd.
Auckland
Tel:+64 9 845 5347
Fax:+64 9 415 5348
www.advancetrident.com
service@advancetrident.com

Norway
Sleipner Motor AS
Fredrikstad
Tel:+47 69 30 00 60
Fax:+47 69 30 00 70
www.sleipner.no
info@sleipner.no

Poland
Taurus Sea Power SP. Z.O.O
Gdansk
Tel:+48 58 344 30 50
Fax:+48 58 341 67 62
www.taurus.gda.pl

Portugal
Riesnautica Lda.
Alhos Vedros
Tel:+351 210 865 077
www.riesnautica.pt
ricardo.estrada@riesnautica.pt

Russia
Standarte
Starbeyevo
Tel:+7 495 575 67 23
Fax:+7 4 95 575 39 77
www.standarte.ru
info@standarte.ru

South Africa
PowerSol
Cape Town
Tel: +27 21 552 1187
Fax: +27 21 555 2503
bruce@powersol.co.za

South Korea
D-I Iindustrial Co Ltd
Jinju-si, Kyungnam-do
Tel: +82 55 760 5520
Fax: +82 55 755 9188
www.d-i.co.kr
dicl@d-i.co.kr

Spain
Imnasa Marine Products
Girona
Tel:+34 902 300 214
Fax:+34 902 300 215
www.imnasa.com
imnasa@imnasa.com

Sweden
Sleipner AB
Strömstad
Tel:+46 526 629 50
Fax:+46 526 152 95
www.sleipnerab.se
info@sleipnerab.se

Switzerland
Senero AG
Winterthur
Tel:+41 52 203 66 55
Fax:+41 52 203 66 56
www.senero.ch
info@senero.ch

Singapore/Malaysia/ Indonesia/ Vietnam/Phillipines/Thailand
Island Marine Services Pte Ltd
Singapore
Tel:+65 6795 2250
Fax:+65 6795 2230
www.island-marine.com
karl@island-marine.com

Taiwan
Mercury Marine Supply
Kaohsiung
Tel:+886 7 3317 293
Fax:+886 7 3314 232

Turkey
Denpar Ltd.
Istanbul
Tel:+90 212 346 1332
Fax:+90 212 346 1329
seda@denpar.com

UK/Ireland
Sleipner Motor Ltd.
South Brent
Tel:+44 1364 649 400
Fax:+44 1364 649 399
andy@sleipner.co.uk

Ukraine
Yachtglanz Marine Equipment
Tel:+49 231 474 09 599
Fax:+49 231 474 11 594
www.yachtglanz.com
info@yachtglanz.com

United Arab Emirates
Teignbridge Propellers & Marine Equipment Co. Ltd.
Dubai
Tel:+971 4 324 0084
Fax:+971 4 324 0153
teignpro@emirates.net.ae

USA/Canada/Carribean
Imtra Corporation
New Bedford, MA
Tel:+1 508 995 7000
Fax:+1 508 998 5359
www.imtra.com
side-power@imtra.com

Sleipner Motor AS • P.O. Box 591, N1612 Fredrikstad • Norway
Tel: +47 69 30 00 60 • Fax: +47 69 30 00 70
sidepower@sleipner.no • www.side-power.com